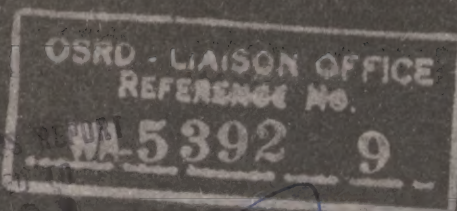


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**INTERROGATION OF
GENERAL GERHARD ROSE, VICE-
PRESIDENT OF THE ROBAT KOCH
INSTITUTE, BERLIN
CHIEF CONSULTANT IN TROPICAL MEDICINE
TO THE GERMAN AIR FORCE**

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COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE

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INTERROGATION OF GENERAL GERHARD ROSE
VICE-PRESIDENT OF THE ROBAT KOCH INSTITUTE, BERLIN
CHIEF CONSULTANT IN TROPICAL MEDICINE TO THE GERMAN AIR FORCE.

Reported by:

DR. J.B. RICE, T.I.I.C.
CAPT. G. ROSEN, M. C., ETOUSA

CIOS Target No. 24/329
Medical

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

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COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE

Interrogation of General Gerhard Rose, Vice-President of the Robat Koch Institute, Berlin, and Chief Consultant in Tropical Medicine to the German Air Force, 25-26 June 1945, by Doctor J. B. Rice, U.S. Civilian, TIIC, and Captain George Rosen, M.C., Headquarters, ETOUSA.

1. INTRODUCTION

General Rose was interrogated on 25-26 June 1945 with a view to ascertaining the experience of the German Air Force, and wherever possible that of the German Army, in the fields of Tropical Medicine and public health. Rose was extremely cooperative, and on several occasions volunteered information that was not directly requested. In the course of the interrogation, he was asked to prepare a memorandum on infectious hepatitis, giving the German views on the nature, cause, mode of transmission and clinical aspects of the disease, as well as a description of the research work that had been carried out. This he agreed to do.

2. MALARIA.

Rose's main field experience with Malaria during the war had been in Greece, in and around Salonika. He is of the opinion that Malaria in this part of Greece is due largely to A. superpictus, a stream breeder. (N.B. This is incorrect, as the Rockefeller Foundation studies showed a A. Sacharovi (syn. A. elutus) to be the chief factor. A superpictus is unimportant. (J.B.R. and G.R.)). For mosquito control Paris green mixed with dust was sprayed from airplanes. This mode of spraying, however, is regarded as uneconomical by General Rose. Furthermore, he considers the use of airplane spraying to be inefficient as it does not control small streams. He advocates the control of infected mosquitoes, as being most suitable for a region like Greece. This is to be achieved by spraying houses with DDT, but ignoring the stables and barns. For this purpose DDT mixed with fluoric acid was used. Rose asserted that in one village, with a population of 500, the malaria morbidity rate had been reduced 50% with this method of control. (N.B. Because of the special conditions obtaining in this part of Greece, we have grave doubts as to the validity of these results. JBR.) Rose considers that Gambusiaaffinis makes mosquito control easier, but seldom if ever suffices for complete control.

In the Crimea, the German Army, because of a shortage of Paris green, used diphenylamine as a mosquito larvicide. It was distributed by hand spraying. 2-3% diphenylamine mixed with dust or talc. was sprayed from airplanes. Rose does not believe that diphenylamine has any advantage over Paris green.

In this connection, Rose stated that more information on experience in the Crimea and the Kuban Bridgehead might be had from Dr. Ernst

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Rodenwaldt, professor of hygiene at Heidelberg, who was chief malariologist for the Wehrmacht. Rodenwaldt organized special malaria units known as Malaria Lehr-Trupp.

With regard to the treatment of malaria, Rose thinks that 0.4 grn. atabrine gives the same suppressive effect whether administered in doses of 0.06 grn. daily or 0.2 grn. twice weekly. Nevertheless, in an army it is simpler to have the men take the dose daily. Sontochin and brachysan have not been used in the field, only in experiments with mentally ill patients at Muhlhausen. Brachysan was used for treatment only in a small number of patients. As the dosage employed was too small, the significance and interpretation of the results remain doubtful. With respect to sontochin, Rose expressed the opinion that it was equivalent to atabrine in the treatment of malaria. The dosage given was 0.3 to 0.5 grn. daily. The only advantage that sontochin appears to have over atabrine is that it does not stain the skin a yellow color.

Under Rose's supervision, sontochin and atabrine were tested for suppressive effect on approximately 200 mentally ill patients. The technique of the test was the following. Patients were given drugs in varying dosage for one week, usually twice weekly. Then 15 mosquitoes, infected with Pl. vivax and Pl. falciparum, were fed on the patients weekly for eight weeks during treatment. At the end of nine weeks the treatment was stopped, and the patients were examined for 400 days. During this period frequent blood smears were made. Of 126 patients on atabrine, eight broke through the protective screen within two months, but the clinical course of the disease was mild. These were all cases of falciparum infection. Among patients infected with Pl. vivax, the number of breakthroughs was slightly higher, although Rose claims that he does not recall the precise figures.

He is certain, however, that atabrine does afford complete and permanent protection to some patients. He did not have, nor could he recall the figures on sontochin. Furthermore, the observations with sontochin did not extend over a period of more than two months because the experiment was not completed.

Rose does not regard atabrine as a toxic drug, although he has seen a few cases of unconsciousness that occurred when it was used intravenously. He has never observed cases of psychosis caused by atabrine.

In the treatment of malaria, Rose also employed a special bismuth compound used in cases of double tertian infections to interrupt and suppress one series of parosysms. After 10 to 12 days the series reappears as usual. The use of this bismuth compound was simply as an adjunct to the regular antimalarial therapy.

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During the discussion of the malaria problem, Rose was questioned as to his attitude towards the work of Claus-Schilling, who had been attempted to immunize patients against malaria by injecting at first dead sporozoites and then small doses of living sporozoites. Rose expressed the opinion that even if successful this work was impractical, but that he is very doubtful of the validity of Schilling's work.

3. TYPHUS FEVER

General Rose has used various types of typhus vaccine, and has tested them in controlled experiments. He feels that louse vaccine egg-yolk vaccine, rabbit lung vaccine, and mouse lung vaccine are all of approximately equal effectiveness. From eggs only five ounces can usually be obtained, although with the best technique the yield can be increased to 35 ounces. With rabbit lung one can obtain 300 doses of vaccine per rabbit, whereas from mouse lung only five doses per mouse can be obtained. Rose believes that rabbit lung is the most economical source material, but emphasized that the animals must be kept in an air-conditioned room.

Tests to determine the effectiveness of various types of typhus vaccine were carried out by Erwin Ding of the S.S. on 150 prisoners who had been condemned to death. 35 prisoners were used as controls. All the prisoners were infected with typhus fever. The vaccine did not prevent the disease, but it took a much milder course in the vaccinated group. The appearance of the members of the vaccinated group was similar to that of persons suffering from mild influenza with a temperature of 39° C. In the unvaccinated control group, 33 out of the 35 died. The two survivors did not come down with typhus fever. Later, on investigation, it was found that these two persons had recently had some communicable disease which was diagnosed as influenza. It became evident that these persons had really had typhus and were consequently immune. Rose stated that a paper dealing with this work was published in the Zeitschrift fur Hygiene und Infektionskrankheiten in 1945.

Rose expressed the opinion that in this war, the typhus situation in the German forces was not handled as well as it had been during the First World War. His explanation for this development is that the present war was a war of movement with fixed delousing stations far behind the front, whereas in the war of 1914-1918, the delousing stations were near enough to the front to be effective. In addition, he feels that Dr. Eyer, who was in charge of typhus control for the German Army bungled his job by insisting on the possibility of dust transmission in typhus, and by preventing the early use of DDT. Rose thinks that the Lauseto preparations are about as effective as DDT, since the active principle is the same. He considers the lousicide known as Delicia, a

pyrethrum preparation, to be effective, but its effectiveness is lessened by the fact that it is water soluble and washes out of clothes. General Rose knows nothing of rutenol (nitroacridine) in the treatment of typhus fever. In fact, he thinks no treatment known at present has any effect. Convalescent serum may be of some slight benefit. Horse serum has been tried on too few cases and the results are doubtful.

The insistence of Dr. Eyer on an egg-louse-egg passage of Rickettsia cultures used in the preparation of typhus vaccine for the German Army was discussed with Rose. He explained that the use of this passage was due to Eyer's belief that continuous egg passage would lead to the loss of virulence. Rose feels that this is all nonsense since strains kept in the laboratory for 30 years have not lost their virulence. He expressed the opinion that Eyer's egg-louse-egg passage does not give an attenuated or egg adapted strain.

4. MITE TYPHUS

General Rose stated that he had no experience with mite typhus nor had he received any information from the Japanese.

5. TRICHINOSIS

The Germans had had epidemics of trichinosis among their troops on the Eastern Front because the men did not obey regulations concerning meat. Fuadin was employed in the therapy of this disease, but Rose is of the opinion that the benefits are doubtful. Nevertheless, he thinks that it may be worth further trial. He believes that 50 cc. of Fuadin administered over a period of 10 days together with daily infections of emetin may injure the reproductive mechanism of the female worm and prevent discharge of ova while the female is buried in the intestinal mucosa and inaccessible to anthelmintics.

6. INFECTIOUS HEPATITIS

This is an acute infectious disease which Rose believes is caused by certain virus strains. He stated that in later stages the disease may go on to complete liver cirrhosis, although this is a rather uncommon sequela. The disease is not transmitted by insect bites, but is truly infectious. General Rose agreed to prepare a memorandum on infectious hepatitis (See Introduction Above).

7. LEPTOSPIROSIS.

Sporadic cases of leptospirosis occurred in the German forces, especially in France and on the Eastern front. Rose stated that German investigators have positively demonstrated that the organism is carried by the wild mice (Rotelmaus), hence the name "field fever" or "mud fever". He called attention to Dr. Wilhelm Rimpau, of Munich, who has been most

active in the study of this disease.

8. BACILLARY DYSENTRY.

According to Rose, was an important problem for the Wehrmacht because of the considerable loss of time. There were a number of epidemics, but all were mild except one in Poland in 1939. The Wehrmacht instituted compulsory vaccination against bacillary dysentery during 1942, 1943 and most of 1944, but then abandoned it because the results were entirely negative. Rose claimed that he was convinced of the uselessness of this inoculation from the beginning, but that the German Air Force had to adopt it because of pressure from the Army. He alleges that he never heard of the use in the German Forces of an oval vaccine for bacillary dysentery.

9. AMEBIC DYSENTRY.

This was not an important problem in the German Army. There were a few hundred cases among the German troops in North Africa. All of these were treated by Dr. Hauer of Berlin, who tried new drugs on them. Rose claims that he knows nothing of the results obtained by Hauer.

10. TRANSMISSION OF BACILLARY DYSENTERY.

In connection with his statement on bacillary dysentery, Rose made the claim to have demonstrated in the laboratory that dysentery and typhoid bacilli can be transmitted from fly larvae to adult flies. The investigation was carried out by taking fly eggs, sterilizing them by treatment with mercury bichloride, and then growing them in the sterile medium to which dysentery bacilli or typhoid bacilli had been added. Later the pupae were removed and again sterilized with mercury bichloride. When the adult flies emerged, live virulent bacteria were found in the droppings of the flies. The findings were positive in about 20% of the flies hatched. Rose also stated that he had attempted to rear fly larvae on completely sterile media, but was unable to do so until he had added saprophytic bacteria to the culture media. This work was reported in the Jahresberichte DES Robert Koch Institute for 1941, 1942 and 1943, and published in the Veroffentlichungen aus dem Gebiete des Gesundheitswesens.

11. CHOLERA.

During the war there were sporadic cases in southern Russia at Rostov on the Don and in the Donetz Basin. About 100 occurred among Russian prisoners. Rose does not know why an epidemic did not develop. There was no evidence that cholera was spread by Russian patriots, although cholera cultures, according to Rose were found in the possession of Polish patriots. Typhoid cultures were also employed against the Germans by Yugoslavs, but without much effect.

Vaccination against cholera was employed at first, but later when the danger of cholera seemed remote it was discontinued. Not more than 150 cases developed, and no new treatment was introduced.

12. SCARLET FEVER AND DIPHTHERIA.

Scarlet fever was an important problem in the German forces especially during the latter part of the war when young boys were inducted. They ranged in age from 15 to 17. The 16-year olds seemed to be especially susceptible, and 80% of the cases developed during the first 4 or 5 weeks in the army. During this period they were receiving their basic training and were all together. At the end of this period, the boys were sent out to their various units (usually anti-aircraft), and the rate fell sharply. The incidence of contagious disease was also high in refugees from the East.

These were chiefly rural people with low immunity who were brought together in large camps for the first time. The diseases in order of prevalence were measles, scarlet fever, diphtheria and epidemic parotitis.

In 1943 there was a great epidemic of scarlet fever. As a protective measure, inoculation with the Farago toxin was practiced. Rose believes that the Farago vaccine is better than toxoid. It does not prevent epidemics, but does lower the mortality. This was proved beyond all doubt in an epidemic reported by Claudberg. In this epidemic the morbidity was reduced, and the mortality lowered in the vaccinated group as compared with the controls. The vaccine produces a strong local reaction and sometimes even a generalized rash, but does not cause death. On the other hand, Rose stated that in at least two cases in his experience infection of toxoid caused death.

Diphtheria was handled in orthodox fashion. Rose does not believe that soldiers should be passively immunized against diphtheria when a case appears because the spread is erratic, and it may be that the men will be sensitized to serum which they may need at some later date.

13. TULAREMIA.

Rose stated that the Germans were greatly surprised to find extensive epidemics of tularemia in Russia among the civilian population in the Donetz Basin and along the Black Sea. The disease was not severe and there were few deaths, but its course was sometimes protracted lasting for several months. Clinically, all forms of the disease-ocular glandular, and intestinal - occurred. The cases numbered hundreds of thousands. Investigations showed that insects did not play a part in transmission. It was found, however, that the disease was transmitted by direct contact through food, or by mice and rats (Rattus rattus). Transmission by water contamination was suspected but never proven.

14. TRENCH FEVER.

According to Rose, was much more prevalent than typhus on the Eastern Front. In the treatment of the disease, induced fever produced by the infection of bacterial suspensions gave good results. Rose feels that the benefit from fever therapy was beyond all doubt.

15. RELAPSING FEVER.

There were a few tick-borne cases from North Africa, but no

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louse-borne cases occurred in the German armed forces. Rose admitted that he cannot understand why louse-borne relapsing fever was absent on the Eastern Front despite the prevalence of pediculosis as shown by the widespread occurrence of typhus and trench fever.

16. SYPHILIS.

Rose claims that the incidence of syphilis on the Russian front was low because of the hostile attitude of the Russian women, and because syphilis was not prevalent among the Russian peasants. Large numbers of syphilis cases did occur, however, among the German troops in France and Rumania. Rose claimed to be unable to give any figures as to the number of cases in the Wehrmacht.

17. GONORRHEA.

Sulfonamides were used for the treatment of gonorrhea. In sulfonamide-resistant, or relapsing cases, recourse was had to local therapy. A large number of these cases were cured by the use of sulfonamides in conjunction with non-specific therapy. General Rose stated that for non-specific therapy intramuscular injections of turpentine were used. The non-specific abscess produced by the turpentine infection is painful, but it helps to clear up the gonorrheal infection.

18. LYMPHORGANULOMA VENEREUM.

This was found to be extremely common in Rumania. Cases of this disease comprised 10% of all venereal infections.

19. LEISHMANIASIS.

Rose stated that only a few cases of cutaneous leishmaniasis were seen in southern Greece and Crete. These cases were treated by atabrine or concentrated solustibosan infections, and by local treatment with charcoal and sulphuric acid, or carbon dioxide snow. The number of cases was so small, however, that no definite statement can be made regarding the effectiveness of various treatment.

KALA-AZAR.

With regard to kala-azar, Rose asserted that among 500 German "volunteers" serving in Spain during the Civil War, there had been six cases. He claimed to know nothing about the treatment.

20. SCHISTOSOMIASIS.

This was not a problem in the German armed forces. Rose claims to have no recent knowledge of this disease.

21. FILARIASIS.

This was likewise of no concern to the German army. Rose stated that he knows of no new treatment or preventive measures. He believes organic antimony compounds make the microfilariae disappear temporarily by exerting an adverse effect on the reproductive organs of adult worms.

22. SCABIES.

Rose claims to have no new knowledge of this disease. He said

that his time was spent on more important diseases. He has never heard of moriphen.

23. RHEUMATIC FEVER.

General Rose denied any knowledge of German Army policy in dealing with this disease, as it was outside his field of activity.

24. BLOOD SUBSTITUTES.

According to Rose, the Germans at first used whole blood, but the factor of instability as well as difficulties in transportation compelled them to resort to liquid serum. Dried plasma was used, but he denied any knowledge of the results obtained with this product.

25. SULFONAMIDES.

No mass experiments in the prophylaxis of respiratory infections in the army were undertaken, although the matter was discussed.

Rose expressed the opinion that Marfanil is regarded in German medical circles as the best sulfonamide for local application in war wounds since it gives the most favorable results. He thinks that it was also administered orally, but has no direct knowledge regarding results of either type of administration. In the German armed forces sulfonamides were not issued to soldiers for oral use because it was felt that the medicament would not be used properly and the men would not receive enough of the drug.

Rose disclaims any knowledge of Badional, a new sulfonamide.

26. VITAMINS.

An attempt was made to give vitamin C, in the form of candy, to German troops, but the results were unsatisfactory as the soldiers gave the candy to girls, or sent it home. Regarding Vitamin A, Rose thinks a more clearcut policy was followed in the German Air Force for flying personnel, but he claims to have no knowledge of it as it was outside his particular sphere of responsibility.

27. STIMULANTS.

A mixture of caffeine and ephedrin was sometimes given to air force officers, but it never became a general practice because of the shortage of supplies. This mixture was not issued to fliers. Pervitin (a stimulant of the ephedrin series) was given to fliers on special occasions to relieve fatigue, but even this was discontinued when it was found that the drug was habit-forming.

28. IMMUNIZATIONS IN THE GERMAN AIR FORCE.

a. SMALLPOX vaccination, except for soldiers in the 15 to 16 year age group, who had only recently been vaccinated in school (at the age of 12).

b. TYPHOID and PARATYPHOID A and B were routine.

c. CHOLERA immunization was routinely practiced on the Eastern Front during the early years of the war, but was later abandoned because no danger developed.

- d. BACILLARY DYSENTERY. This immunization was continually used for three years, but was abandoned as valueless.
- e. YELLOW FEVER vaccine had been prepared, but was never used because the troops were not exposed to the disease.
- f. RABIES vaccination was only used after the bite of a rabid animal.
- g. TETANUS. All wounded soldiers received injections of antitoxin, except paratroops operating in Crete, Holland and Norway. These men were actively immunized with two injections of toxoid because it was thought they might not be in a position to obtain serum. Four cases, with one death, developed among the paratroopers, but it was found that all these cases had received only one injection, and had succeeded in eluding the second injection. Although Rose believes active immunization to be effective, he thinks that a medical officer who does not give antitoxin to a wounded man assumes a great responsibility. The basis for this attitude is his feeling that one can never be certain that a man has received his inoculations and is immunized.
- h. SCARLET FEVER immunization is used only when local conditions warrant its use.
- i. DIPHTHERIA immunization is used only when local conditions warrant its use.
- j. TYPHUS immunization was used only on the Eastern Front. It was given only to men over the age of 35, because of the shortage of supplies. Personnel in delousing stations and those handling the sick were also given vaccine.

29. INSECTICIDES and INSECT REPELLENTS. The Wehrmacht did not employ insect repellents, but the German authorities were very much interested in captured American repellents. Rose disclaimed any knowledge of new insecticides. He had been a member of the Arbeitsausschuss fur Raum, Entwesung und Entseuchungsmittel (a committee for the allocation of materials to insecticide factories operating under the Speer Ministry), and occupied this position from 1942 to 1945. The Committee was headed by a Dr. Schreiner, and usually met once a month. Rose alleges to have had little interest in the proceedings, and recalls only that factories such as Ernst Freyberg, at Delitssch, Riedel at Hannover, and Tenunder in Berlin were employed in the manufacture of insecticides. Many of the products consisted essentially of DDT. Others contained pyrethrum, or cyanic acid.

Rose confirms the remarkable action of DDT in preventing papppatadi fever. He stated his belief that the disease can be practically eliminated by spraying bedroom walls and bed nets with DDT. He also thinks that this insecticide may have a repellent effect on phlebotomes, since dead ones were never found on the floor; but he admits that experiments to prove this point failed.

In this connection, Rose claims to have proved that DDT evaporates and is capable of killing mosquitoes that have actually not been touched by the powder.

30. WATER CONTROL

Rose denied any knowledge of new developments in this field. The German Army and Air Force depended on the Seitz filters.

He feels that filtration is better than chlorination although the latter is more economical. The advantages of filtration are that (1) helminth eggs and the cysts of amoebae are removed; (2) sterilization is more certain; and (3) the water has a better taste and appearance.

31. AEROTITIS MEDIA

General Rose was not aware of any special treatment for this condition.

32. INSTITUT FUR WEHRHYGIENE, MÜHLHAUSEN.

This institute for military hygiene at Muhlhausen was originally the Tropical Disease Section of the Robert Koch Institut, of Berlin. When Rose was called into military service, he had the section, which he headed, converted into the Institut fur Wehrhygiene. Most of his staff (Captain Blaurock, Captain Boverter, Captain Krue and Dr. Emmel) stayed with him.

A branch of his institute was also established at the Landesheilanstalt, Arnsdorf (Bezirk Dresden, Freistaat Sachsen). This branch was evacuated for the most part to Muhlhausen in the face of the Soviet advance.

Rose also stated that the Robert Koch Institute had been bombed out, and that research had not been actively carried on there during the war.

An Institute for Tropical Medicine (Tropenmedizinisches Institut) had been organized under the auspices of the German army by Dr. Ernst Rodenwaldt (see No. 2 above), consultant in tropical medicine to the army. On the staff of this Institute were Rodenwaldt, Erich Martini the entomologist, Westphal, the protozoologist, F.M. Peter, chemist from Leverkusen, Piekarski, and Ronnefeld. The Institute was later evacuated to the William Kerckhoff Institute at Bad Nauheim. General Rose did not know of the later fate of the Institute staff, but he did state that Dr. Martini had proceeded to Rosenheim in Bavaria.

33. MEDICAL INTELLIGENCE.

According to General Rose the Wehrmacht had no central agency for the collection and dissemination of medical intelligence. Information of this type, however, was collected and used locally.

The attempt to gather and publish information on the distribution of disease was in the Seuchenatlas of H. Zeiss of Berlin, but Rose feels that this production was of small value as it was too general.

Dr. J. B. Rice, TIIC

Captain George Rosen, M.C.
Headquarters, ETOUSA.

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